

## REMARKS

This is in response to the Office Action mailed May 13, 2003. Claims 1, 4, 6, 8, and 9 have been amended. Claims 10-13 have been added. Claims 1-13 are currently pending and at issue.

Claim 1 has been amended to correct a grammatical error by replacing the word "comprises" with --comprising--.

Claims 4 and 6 have been amended to correct typographical errors by replacing "a starch" with -- $\alpha$ -starch--. Support for this amendment is found in the specification at page 4, last full paragraph, and at page 5, second full paragraph.

Claims 8 and 9 have been amended to correct grammatical errors.

Claims 10-13 have been added to more fully describe the disclosed invention. Support for claim 10 is found in the specification at, for example, page 3, last full paragraph to page 4, first full paragraph. Support for claim 11 is found in the specification at, for example, page 3, last full paragraph. Claim 12 includes subject matter set forth in original claims 1, 2, 4, and 5. Further support for claim 12 is found in the specification at, for example, page 3, second full paragraph. Support for claim 13 is found in the specification at, for example, page 3, last full paragraph to page 4, first full paragraph.

No new matter has been added. Reconsideration of the application is respectfully requested.

**Rejections Under 35 U.S.C. § 112, First Paragraph**

Claims 1-9 stand rejected under 35 U.S.C. § 112, first paragraph, as containing subject matter that was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most clearly connected, to make and/or use the invention. Specifically, the Examiner contends that the term " $\alpha$ -starch" is not a known and defined term.

The rejection is respectfully traversed, and reconsideration is requested.

The term " $\alpha$ -starch" is recognized in the art, as acknowledged by the Examiner in a Final Office Action mailed on August 28, 2002, wherein the Examiner stated that "the terminology 'alpha-starch' appears to be a known term as applied to the Japanese language (August 28, 2002 Final Office Action: p. 2, ¶1). There is no requirement in § 112 or in the case law that a particular term be well known in a particular country or jurisdiction.

Furthermore, art recognition of the term " $\alpha$ -starch" is evidenced by its use in a vast number of U.S. patents. Applicants have searched the USPTO database and uncovered 380 of such patents. The prevalent use of this term in the specifications (in all 380 patents) and claims (in 28 of the 380 patents) of issued U.S. patents is indicative of its being an acceptable claim term that would be recognizable to and fully understood by a person of ordinary skill in the art. Applicants' search strategy and total results are identified in Attachment A, submitted herewith.

For example, U.S. Patent No. 6,515,054 recites (col. 5, line 54 to col. 6, line 9, emphasis added):

In the present invention, particularly preferable among the above-exemplified fillers are the starches (e.g. starch polymers, natural starch extracted from plants), and specific examples thereof include raw starches (grain starch such as corn starch, potato starch, sweet potato starch, wheat starch, cassava starch, sago starch, tapioca starch, millet starch, rice starch, bean starch, arrowroot starch, bracken starch, lotus starch and water caltrop starch), **physically modified starches** (e.g.  $\alpha$ -starch, fractionated amylose, moistly and thermally treated starch), enzymatically modified starches (e.g. hydrolyzed dextrin, enzymolyzed dextrin, amylose), chemical decomposition-modified starches (e.g. acid-treated starch, hypochlorous acid-oxidized starch, dialdehyde starch), chemically modified starch derivatives (e.g. esterified starch, etherified starch, cationized starch, crosslinked starch), and their mixtures.

Additionally, claim 18 of U.S. Patent No. 6,455,053 recites (emphasis added):

The method according to claim 17, wherein said natural or synthetic polymer to be added is at least one selected from the group consisting of:  $\alpha$ -starch, partly pregelatinized starch, carboxymethyl starch sodium, methyl cellulose, hydroxypropylmethyl cellulose, hydroxypropyl cellulose, carboxymethylcellulose sodium, powdered acacia, tragant gum, karaya gum, gaty gum, pectin, arabinogalactan, marmelo, locust bean gum, guar gum, tamarind seed polysaccharide, alginic acid, carrageenan, furcellaran, xanthan gum, cardran, casein, pullulan, polyvinylpyrrolidone, and polyvinyl alcohol.

Applicants further submit that starches are known in the art to encompass both native starches and modified starches (see definitions of "Food starch," "Native starch," and "Modified starch," submitted herewith as Attachment B). Modified starches can further include both chemically-modified starches and physically-modified starches (see definition of "Physically-modified starch,"

submitted herewith as Attachment B). The attached definitions reveal that "native starch" is starch recovered in its original, unmodified form by extraction from a starch-bearing material, whereas "modified starch" is starch that has been treated physically or chemically to modify one or more of its key physical or chemical properties.

An  $\alpha$ -starch is an example of a physically-modified starch. *See, e.g.*, U.S. Patent No. 6,515,054 (col. 6, lines 1-3) ("physically modified starches (e.g.  $\alpha$ -starch"); U.S. Patent No. 5,972,507 (col. 4, line 48) ("physically modified starch such as  $\alpha$ -starch"); and U.S. Patent No. 5,897,960 (col. 7, lines 18-19) ("Examples of the modified starch include (1) physically modified starch such as  $\alpha$ -starch").

Thus, the term "starch" is a broad term encompassing both native (i.e., unmodified) and modified starches. Accordingly, the term " $\alpha$ -starch" is not the same as the term "starch" and is understood by persons of skill in the art to have a distinctive and definite meaning. *See, e.g.*, Daiei-Sangyo, Food Materials, [http://www.daiei-sangyo.co.jp/products/product01\\_e.htm](http://www.daiei-sangyo.co.jp/products/product01_e.htm) (distinguishing the terms "starch" and " $\alpha$ -starch"), submitted herewith as Attachment C.

Applicants agree with the Examiner that  $\alpha$ -starch is pregelatinized starch (see February 28, 2003 Interview Summary: p. 3; and April 29, 2003 Advisory Action: p. 2, second paragraph). Furthermore, Applicants have searched the USPTO database and uncovered at least three patents that describe  $\alpha$ -starch as a pregelatinized starch in their specifications and/or claims. Applicants' search strategy and total results are identified in Attachment D, submitted herewith.

For example, U.S. Patent No. 5,571,545 provides (col. 3, lines 14-18, emphasis added):

**$\alpha$ -starch is obtained by gelatinizing starch** obtained from starch containing raw materials such as cereals, rootcrops and the like and is used in an amount of 0.2 to 9% by weight, preferably 0.5 to 7.5% by weight as dry weight based on the total weight of the food material of the present invention.

Similarly, U.S. Patent No. 5,106,890 provides (col. 2, lines 62-65, emphasis added):

(2) Modified starch: (i) Physically modified starch:  **$\alpha$ -starch (pregelatinized starch)**, fractionated amylose, a starch treated with moist heat, and the like

Additionally, claim 2 of U.S. Patent No. 5,332,592 recites (emphasis added):

A process as claimed in claim 1, wherein step (v) comprises steaming the raw noodle strings to such an extent that the starch present in the core part of each noodle string remains in the state of  $\beta$ -starch while the  $\beta$ -starch present in the surface layer of each noodle string is **gelatinized to  $\alpha$ -starch**, and wherein step (viii) comprises frying the steamed noodle strings in an edible oil at a temperature of 110° to 130° C. to such an extent that the  $\beta$ -starch present in the noodle strings has been entirely **gelatinized to  $\alpha$ -starch**, the grooves in the fried noodle strings being only partially closed.

Thus, the existence of issued patents, which disclose that  $\alpha$ -starch is the same as pregelatinized starch, further demonstrates that the term " $\alpha$ -starch" is a known and defined term that is recognized by persons of ordinary skill in the art. Because there is no requirement for Applicants to provide teachings of known technology in a patent specification, *Spectra-Physics, Inc. v. Coherent, Inc.*, 3 USPQ2d 1737, 1743 (Fed. Cir. 1987) ("A patent need not teach, and preferably omits, what is well known in the art."), this rejection should be withdrawn.

### **Claim Objections**

Claim 1 has been objected to as requiring correction of informalities. The Examiner asserts that the word "comprises" should be replaced with --comprising--. Claim 1 has been amended as suggested by the Examiner to recite the word "comprising." Therefore, this objection should be withdrawn.

### **Rejections Under 35 U.S.C. § 103(a)**

Claims 1-5 and 7-9 have been rejected under 35 U.S.C. § 103(a) as unpatentable over Sasahara (Japanese Patent Publication No. JP 11-032608) in view of McPherson et al. (U.S. Patent No. 6,405,677) ("McPherson"). The Examiner cites Sasahara as disclosing an animal excretion-treating material comprising particles having a core layer of fibers and a skin layer of fibers and starch, wherein the core layer and skin layer fibers are those of pulp, the bulk density falls between 0.1 and 0.5, and the particle diameter is between 2 and 20 mm. The Examiner acknowledges that Sasahara fails to disclose the following: the use of  $\alpha$ -starches; skin layer fibers having a length of 0.02 to 1 mm;  $\alpha$ -starch with a particle size of at most 0.25 mm; and an  $\alpha$ -starch to fiber ratio in the skin layer between 20:80 and 80:20. However, according to the Examiner, the use of  $\alpha$ -starch would have been a matter of obvious design choice for a person of ordinary skill in the art. The Examiner also contends that the claimed fiber length, particle size, and workable ranges involve only routine skill in the art. The Examiner cites McPherson as stating that prior art litters employ modified, pregelatinized starches.

The rejection is respectfully traversed, and reconsideration is requested.

All of the present claims recite the use of  $\alpha$ -starch and fibers in the skin layer. Sasahara discloses neither the use of  $\alpha$ -starch nor the use of the presently claimed skin layer fibers. A certified literal English translation of Sasahara is submitted herewith.

Sasahara does not teach or suggest the use of starch,  $\alpha$ -starch, or any other physically modified starch. These terms do not appear anywhere in this reference. Rather, Sasahara is limited to particles having an outer layer formed of water absorbing polymer powder and organic fibrous powder. (See Sasahara: ¶ 0010).

There is no disclosure in Sasahara that would have motivated a person of ordinary skill to replace the water absorbing polymer powder with  $\alpha$ -starch. The secondary reference, McPherson, also fails to disclose information that would have motivated a skilled person to use  $\alpha$ -starch. In fact, McPherson teaches the opposite. McPherson discloses that the use of unmodified starch is preferred: "Surprisingly, it has been found that non-gelatinized, unmodified starches are especially suitable for use as cohesiveness agents in conjunction with the invention." (McPherson: col. 4, lines 64-67). Thus, McPherson teaches away from the use of  $\alpha$ -starch, a physically modified starch.

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Furthermore, Sasahara does not teach or suggest the use of the presently claimed skin layer fibers. Instead, the outer layer disclosed in Sasahara is limited to water absorbing polymer powder and organic fibrous powder. (See Sasahara: ¶ 0010). Fiber is not the same as fibrous powder. The wicking ability of fiber is a

function of fiber length, among other things. Fiber ground into a powder is not the same as fiber.

Sasahara does not teach or suggest the presently claimed use of skin layer fibers in place of the above-disclosed outer layer fibrous powders. The materials used in Sasahara are in a powder form and are deposited onto the surface of the core by charging through supply holes of a coating apparatus. (See Sasahara: ¶ 0016). Sasahara points out that it is desirable for the organic fibrous powder to be mechanically crushed so as to have constant dimensions, and to be deposited on the particle core with a constant thickness and high density, forming a smooth outer layer. (See Sasahara: ¶ 0018). Consequently, the "fibers" of the present invention would be incompatible with Sasahara's depositing process that forms its outer layer. Thus, a person of ordinary skill in the art would not have been motivated to modify Sasahara's outer layer fibrous powder by using the presently claimed in tact fibers.

Furthermore, Sasahara fails to teach or suggest the claimed combination of  $\alpha$ -starch and fibers in the skin layer. In the present invention, the skin layer fibers rapidly absorb excretions and the  $\alpha$ -starch absorbs the water from the fiber-absorbed excretions such that the water causes the  $\alpha$ -starch to become sticky. (See specification: p. 8, last paragraph to p. 9, first full paragraph). The particles then readily bond together into a solid. There is no disclosure in Sasahara that would have taught a person of ordinary skill in the art to use the precise combination of  $\alpha$ -starch and fibers, components that are disclosed neither singly



nor in combination in this reference. Therefore, the use of  $\alpha$ -starch is not an obvious design choice in view of Sasahara.

McPherson does not cure the deficiency of Sasahara with respect to the skin layer fibers because McPherson discloses nothing regarding the use of any kind of fibers in its animal litter. Accordingly, Sasahara and McPherson cannot be relied upon to reject any of the present claims as obvious. Therefore, this rejection should be withdrawn.

Claim 6 has been rejected under 35 U.S.C. § 103(a) as unpatentable over Sasahara, and further in view of Chikazawa, (U.S. Patent No. 5,209,185). The Examiner cites Chikazawa as disclosing the use of tapioca as a starch in an artificial litter. According to the Examiner, it would have been a matter of obvious design choice for one skilled in the art to have used tapioca as the  $\alpha$ -starch.

The rejection is respectfully traversed, and reconsideration is requested.

As discussed above, Sasahara fails to teach the use of fibers or  $\alpha$ -starch in the skin layer, and McPherson teaches away from the use of modified starch. Chikazawa does not cure the deficiency of Sasahara or the combination of Sasahara and McPherson. Chikazawa does not teach the use of  $\alpha$ -starch in the skin layer and the use of fibers in the core. Rather, Chikazawa discloses a particle made entirely of starch, which would be incompatible with Sasahara's two-layer particles.

Furthermore, Chikazawa does not teach or suggest the use of  $\alpha$ -starch (i.e., pregelatinized starch), which is a physically modified starch. Rather, Chikazawa

discloses a litter particle made entirely of native starch: specifically, unmodified tapioca and/or corn powder. (See Chikazawa: col. 2, lines 51-58). Moreover, Chikazawa discloses that its native starch grains can be gelatinized after they have been combined with water and formed into particles (See Chikazawa: col. 3, lines 3-10). Thus, Chikazawa discloses formed litter particles that may be gelatinized rather than pregelatinized starch grains. Consequently, Chikazawa teaches away from the claimed use of  $\alpha$ -starch, a pregelatinized starch, in all of the presently pending claims.

Additionally, new claim 11 recites that " $\alpha$ -starch is contained only in the skin layer." In contrast, Chikazawa discloses litter particles having a single structure and being made from a single material. That is, the Chikazawa particles do not have a skin layer and are formed entirely of starch. There is no teaching or suggestion in Sasahara or Chikazawa that would have motivated a person of ordinary skill in the art to combine these two references by applying the Chikazawa starch (which is not  $\alpha$ -starch or pregelatinized starch) to only the skin layer of the Sasahara two-layer particle, which has a core layer made from a wholly different material (i.e., fibers). Moreover, there is no disclosure in either reference that would have taught a person of ordinary skill to put the Chikazawa starch material specifically into the skin layer rather than the core layer of a two-layer particle. Thus, new claim 11 cannot be found obvious over Sasahara in view of Chikazawa.

Accordingly, Sasahara, McPherson, and Chikazawa cannot be relied upon to reject any of the present claims as obvious. Therefore, this rejection should be withdrawn.

Conclusion

In view of the above amendments and remarks, it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

If there are any other issues remaining, which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned at the telephone number indicated below.

Respectfully submitted,

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